Interesting Facts about Noise

- Noise is unwanted sound. Noise is perceived differently by every individual. A noise that is irritating to one person may be tolerable to another.
- Noise is measured in decibels on a logarithmic scale.
- An increase of 10 decibels will cause the noise to be perceived as sounding twice as loud to the average listener.
- The smallest change in noise level that can be detected by the human ear is about 3 decibels.

- Doubling the traffic volume on a highway will increase the noise level by 3 decibels.
- The noise level will decrease by about 3 to 4.5 decibels for each doubling of the distance from the source. The amount of decrease depends on the absorptive characteristics of the ground.
- The Arizona Department of Transportation uses a noise level of 64 decibels as the criteria for considering noise barriers, which is lower than the 67 decibels specified in federal regulations.
- Noise barriers can be noise walls, earth berms, or a combination of walls and berms.
- Even with noise barriers, residents within 500 to 1000 feet of the highway will likely be able to hear the traffic. Barriers are designed to reduce noise to a tolerable level. They cannot completely eliminate noise.

- Noise barriers along a highway are only effective for homes within about 300 feet of the highway. Beyond that, noise barriers are less effective, but the natural decrease in noise with distance usually reduces noise levels to acceptable levels.

- Noise walls range in height from 8 to 20 feet, depending on what height is needed to reduce the noise to an acceptable level. Noise walls cost about $150 to $400 per linear foot, depending on the height.
- An earth berm (a large mound of packed dirt usually with landscaping) of a given height will provide slightly more noise reduction than a vertical barrier wall of the same height.

- In some cases, existing dense vegetation can reduce traffic noise levels. Vegetation that is a minimum of 100 feet in depth, at least 15 feet high and dense enough that you cannot see the highway through it, can reduce noise levels by approximately 5 decibels. Typical roadside landscaping does NOT affect noise levels.
- As a general rule-of-thumb, each foot of height added to a wall above the height that breaks the line of sight between the source (traffic) and receiver (residence) reduces the noise level by ½ decibel.